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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/589,175

08/11/2006

Julien Thollot

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06/18/2008

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EXAMINER

CALLAWAY, JADE R

ART UNIT

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2872

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/589,175	Applicant(s) THOLLOT ET AL.	
	Examiner JADE CALLAWAY	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/11/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The Preliminary Amendments to the Specification, Abstract and Claims, in the submission dated 8/11/06, are acknowledged and accepted.

Oath/Declaration

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:
It does not identify the city and either state or foreign country of residence of each inventor. The residence information may be provided on either an application data sheet or supplemental oath or declaration.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

4. The drawings were received on 8/11/06. These drawings are accepted.

Specification

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

6. Abstract, line 1, delete "The invention relates to"
7. Abstract , line 2, delete "comprising"
8. Abstract, line 3, delete "said"
9. Abstract, lines 11-12, delete "Said invention"

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 6-10 rejected under 35 U.S.C. 102(b) as being anticipated by Kunzman (2002/0122160).

Consider claim 6, Kunzman teaches (e.g. figure 9) a method of design of a color wheel for an imager color sequential illumination system, the wheel comprising at least three transmissive segments (92, R-G-B-W segmented color wheel), the segments being of different colors each having a hue, saturation, transmissivity and a size suitable for obtaining a beam exhibiting a reference hue when they scroll through a zone of transmission of an illumination beam, wherein it comprises a step of measuring the excitation energies (pixel brightness, [0055-0058]) induced by the various segments in the visual system of an observer and a step of distributing the colored segments (selecting order of segments, [0049]) over the color wheel in an order such that the

differences of successive excitation energies of the visual system of a standard observer (visual stimuli), during the intersegment transitions, when the segments scroll through the transmission zone are the least variable possible {the display, due to the single-DMD color filtering technique, uses filtering on a pixel-by-pixel basis to allow for a trade-off between color separation reduction and overall image brightness} [0015, 0030-0031, 0047, 0055-0058].

Consider claim 7, Kunzman teaches (e.g. figures 4 and 9) a color wheel furnished with a determined number of segments each having a determined dimension and making it possible to obtain a determined global color temperature [0056-0057], the distributing of the segments over the wheel is carried out in such a way that the sum of the differences of energies perceived by the visual system of an observer, when the segments scroll through the transmission zone is the lowest possible {the display, due to the single-DMD color filtering technique, uses filtering on a pixel-by-pixel basis to allow for a trade-off between color separation reduction and overall image brightness} [0015, 0030-0031, 0047, 0055-0058].

Consider claim 8, Kunzman teaches (e.g. figure 9) a device of colored segments comprising a plurality of juxtaposed zones of different colors (R-G-B-W segmented color wheel, 92) making it possible to provide, by illumination of the various zones, beams of different colors wherein the zones of different colors are arranged in an order such that when they are successively illuminated according to the order, the differences of energies perceived by the visual system of a standard observer (visual stimuli), during the interzone transitions, when the illumination passes from one zone to the next zone, are the least variable possible {the display, due to the single-DMD color filtering

technique, uses filtering on a pixel-by-pixel basis to allow for a trade-off between color separation reduction and overall image brightness} [0015, 0030-0031, 0047, 0055-0058].

Consider claim 9, Kunzman teaches (e.g. figure 9) an illumination system wherein the colored segments (R-G-B-W segments of color wheel 92) are distributed in an order such that the sum of the differences of energies perceived by the visual system of an observer during the various transitions between successive segments is minimized {the display, due to the single-DMD color filtering technique, uses filtering on a pixel-by-pixel basis to allow for a trade-off between color separation reduction and overall image brightness} [0015, 0030-0031, 0047, 0055-0058, 0094].

Consider claim 10, Kunzman teaches (e.g. figure 9) a color wheel (92, segmented color wheel) [0094].

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kunzman (2002/0122160) in view of Tanaka (JP 07-318939).

Consider claim 1, Kunzman discloses (e.g. figure 9) an imager sequential illumination system comprising: a source emitting towards the imager a light beam (90, white light source) in the wavelength region comprising at least three primary colors, A

device for scrolling colored segments (92, segmented color wheel) comprising at least three transmissive segments, the scrolling device making it possible to scroll the segments over the optical path of the light beam so that they successively cut the direction of propagation of the beam in the case where the segments are transmissive, the segments being of different colors (red, green, blue) and each having a hue, saturation and transmissivity, and are a size suitable for obtaining a beam exhibiting a reference hue when they scroll sequentially through the zone of transmission of the beam, wherein the colored segments are distributed in the scrolling device in an order such that the differences of energies perceived by the visual system of a standard observer (visual stimuli), during the intersegment transitions, when the segments scroll over the optical path of the beam, are least variable possible {the display, due to the single-DMD color filtering technique, uses filtering on a pixel-by-pixel basis to allow for a trade-off between color separation reduction and overall image brightness} [0015, 0030-0031, 0047, 0055-0058]. However, Kunzman does not disclose that the source is a polychromatic light beam with at least three primary colors. Kunzman and Tanaka are related as color wheel devices. Tanaka teaches (e.g. figures 1 and 5) a polychromatic light source comprising at least three primary colors (red, blue, green) [0022]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the light source of Kunzman, as taught by Tanaka, in order to have a color image with at least three primary colors.

Consider claim 2, the modified Kunzman reference discloses (e.g. figure 9 of Kunzman) an illumination system wherein the colored segments (R-G-B-W segments of color wheel 92) are distributed in an order such that the sum of the differences of

energies perceived by the visual system of an observer during the various transitions between successive segments is minimized {the display, due to the single-DMD color filtering technique, uses filtering on a pixel-by-pixel basis to allow for a trade-off between color separation reduction and overall image brightness} [0015, 0030-0031, 0047, 0055-0058, 0094 of Kunzman].

Consider claim 3, the modified Kunzman reference discloses (e.g. figures 1 and 5 of Tanaka) an illumination system wherein the scrolling devices comprises several segments of like color so as to reduce the mean differences of excitation energies by distributing them over several intersegment transitions {in addition, the display, due to the single-DMD color filtering technique, uses filtering on a pixel-by-pixel basis to allow for a trade-off between color separation reduction and overall image brightness, as taught by Kunzman}. [0007, 0022-0023 of Tanaka].

Consider claim 4, the modified Kunzman references discloses (e.g. figures 1 and 5 of Tanaka) an illumination system wherein the scrolling device comprises a different number of segments of primary or recompounded colors so as to reduce the mean difference of excitation energies by distributing them over several intersegment transitions {in addition, the display, due to the single-DMD color filtering technique, uses filtering on a pixel-by-pixel basis to allow for a trade-off between color separation reduction and overall image brightness, as taught by Kunzman} [0007, 0022-0023 of Tanaka].

Consider claim 5, the modified Kunzman reference discloses (e.g. figure 9 of Kunzman) an illumination system wherein the device for scrolling colored segments comprises a color wheel (92, segmented color wheel) comprising at least three

transmissive segments (R-G-B-W segments), the wheel being mounted on means of rotation (93, motor) so as to scroll the segments over the optical path of the light beam [0094 of Kunzman].

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Imai (2002/0024618) discloses a field sequential display of color video picture with color breakup prevention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JADE CALLAWAY whose telephone number is (571)272-8199. The examiner can normally be reached on Monday to Friday 7:00 am - 4:30 pm est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JRC
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Examiner, Art Unit 2872

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